A WINDSCREEN WIPER

Background of the Invention

This invention relates to a windscreen wiper. More particularly, the invention relates to a windscreen wiper and to a protective end fitting for a windscreen wiper.

According to a first aspect of the invention, there is provided a windscreen wiper which includes a unitary elongate curved beam, the beam having a protective end formation at at least one of its tips.

The beam may have a pair of end formations, one at each tip. Each of the end formations may include an extra length of the beam, with the beam mounted to a rubber so that the extra length projects beyond an end of the rubber.

Each of the extra lengths may be folded so that an end portion thereof extends substantially parallel to an end surface of the rubber. Alternatively, each of the extra lengths may be folded back on itself.

An edge portion of the length may be pre-shaped, having rounded edges. The extra length may be folded after being softened in a heating process to facilitate bending.

Each of the protective end formations may include a cap of a synthetic plastics material which fits over the tip.

The curved backbone may have a varying width and or thickness, along its length. The backbone may have a free form curvature in a plane or may have a compound curvature (that is curved in two planes).

According to a second aspect of the invention, there is provided a protective end fitting for a windscreen wiper, which includes a body member having a recess for snugly receiving a tip of a beam.

The fitting may have a locating means, with the beam having complementary locating formations for securing the fitting in position on the beam.

A1 Brief Description of the Drawings

The invention is now described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a side view of a windscreen wiper, in accordance with a first aspect of the invention;

Figure 2 shows a side view of a protective end fitting for a windscreen wiper, in accordance with a second aspect of the invention;

Figure 3 shows an end view of the fitting of Figure 2, viewed from a section taken along III-III in Figure 2;

Figure 4 shows a top view of the fitting of Figure 2;

Figure 5 shows a side view of one embodiment of a protective end formation for a windscreen wiper, in accordance with the first aspect of the invention; and

Figure 6 shows a side view of another embodiment of a protective end formation for a windscreen wiper, in accordance with the first aspect of the invention.

Detailed Description of the Preferred Embodiments

In the drawings, a windscreen wiper in accordance with the invention is generally designated by the reference numeral 10. The windscreen wiper 10 includes a unitary curved backbone in the form of a beam 12 and a rubber wiper blade 14. The beam 12 has a protective end formation generally indicated by reference numeral 16, at each of its tips 18.

Referring to Figures 2 to 4 of the drawings, a protective end fitting for a windscreen wiper, in accordance with a second aspect of the invention, is generally indicated by reference numeral 20. The protective end fitting 20 includes a body member 22 having a recess 24 for snugly receiving one of the tips 18 of the beam 12. Each fitting 20 is moulded and comprises a synthetic plastics material.

Referring now to Figures 5 and 6 of the drawings, two different embodiments of the protective end formation 16 are shown. In Figure 5, the end formation 16 is in the form of a rounded end which was formed by folding an edge portion 26 of the tip 18 over, so that it extends substantially parallel to an edge 27 of the rubber. The end formation 16, shown in Figure 6, is also in the form of a rounded end formed by folding the edge portion 26 of the tip 18 over on itself.

Each edge portion 26 of the tip 18 comprises an extra length of the beam 12. The edge portion 26 may be bent by clamping the tip 18 of the beam 12 in a clamping mechanism to avoid bending or damaging of the beam 12 during bending of the edge portion 26. The edge portion 26 may be softened in a heating process before or after clamping of the tip 18 to facilitate bending.

It will be appreciated that the actual shape of the rounded end is cost and aesthetically determined.